

SEQUENCE LISTING

JC20 rec'd PCT/PTO 14 OCT 2009

SEQ ID NO.: 1: BFA4 cDNA

5 ATGGTCCGGAAGAAACCCCTCTGAGAAACGTTGCAAGTGAAGGCGAGGGCCAGATCCTGGAGCCTATAGGTACAGAAAGCA
AGGTATCTGGAAAGAACAAAGAATTCTCTGCAGATCAGATGTCAGAAATACGGATCAGAGTGATGCTGCAGAACTAAATCATAAGG
AGGAACATAGCTTGCATGTTCAAGATCCATCTTCTAGCAGTAAGAAGGACTTGAAAAGCGCAGTTCTGAGTGAGAAGGCTGGCTTCA
ATTATGAAAGCCCCAGTAAGGGAGGAACTTTCCCTCCTTTCCGCATGATGAGGTGACAGACAGAAATATGTTGGCTTTCTCATTTTC
CAGCTGCTGGGGGAGTCTGTGAGCCCTTGAAGTCTCCGCAAAGAGCAGAGGCAGATGACCCTCAAGATATGGCCTGCACCCCTCAG
GGGACTCACTGGAGACAAAGGAAGATCAGAAGATGTCACCAAGGCTACAGAGGAAACAGGGCAAGCACAGAGTGGTCAAGCCAATT
10 GTCAAGGTTTGAGCCAGTTTCAGTGGCCTCAAAAAACCCACAAGTGCCTTCAGATGGGGGTGTAAGACTGAATAAATCCAAACTG
ACTTACTGGTGAATGACAACCCAGACCCGGCACCTCTGTCTCCAGAGCTTCAGGACTTTAAATGCAATATCTGTGGATATGGTTACT
ACGGCAACGACCCACAGATCTGATTAAGCACTTCCGAAAGTATCACTTAGGACTGCATAACCGCACCAGGCAAGATGCTGAGCTGG
ACAGCAAAATCTTGGCCCTTCATAACATGGTGCAGTTCAGCCATTCCAAAGACTTCAGAAGGTCAACCGTTCTGTGTTTTCTGGTG
TGCTGCAGGACATCAATTCTTCAAGGCCTGTTTTACTAAATGGGACCTATGATGTGCAGGTGACTTCAGGTGGAACATTCAATGGCA
15 TTGGACGGAAACACCAGATTGCCAAGGGAACACCAAGTATTTCCGCTGTAAATTCTGCAATTTCACTTATATGGGCAACTCATCCA
CCGAATTAGAACACATTTTCTTCAGACTCACCAAAACAAAATAAAAGCTTCTCTCCCTCCTCTGAGGTTGCAAAACCTTCAGAGA
AAAACCTCTAACAGTCCATCCCTGCACCTCAATCCAGTGATTCTGGAGACTTGGGAAAATGGCAGGACAAGATAACAGTCAAAGCAG
GAGATGACACTCCTGTTGGGTACTCAGTGCCCATAAAGCCCTCGATTCCCTCTAGACAAAATGGTACAGAGGCCACCAGTTACTACT
GGTGTAATTTTGTAGTTTCAGCTGTGAGTCATCTAGCTCACTTAAACTGCTAGAACATTATGGCAAGCAGCACGGAGCAGTGCACT
20 CAGGCGGCCTTAATCCAGAGTTAAATGATAAGCTTTCAGGGGCTCTGTCTTAATCAGAAATGATCTAGCCAAAAGTTTCAAGAGGAG
AGACAATGACCAAGACAGACAAGAGCTCGAGTGGGGCTAAAAGAAGGACTTCTCCAGCAAGGGAGCCGAGGATAATATGGTAACGA
GCTATAATTGTGAGTTCTGTGACTTCCGATATTCCAAAAGCCATGGCCCTGATGTAATTGTAGTGGGGCCACTTCTCCGTCATTATC
AACAGCTCCATAACATTCAAGTGTACCATTAAACACTGTCCATTCTGTCCAGAGGACTTTGCAGCCAGAAAAGCACCTTGGAG
AAATTACTTATCCGTTTGCTTGTAGAAAAAGTAATTGTTCCCACTGTGCACTCTTGCTTCTGCACTTGTCTCCTGGGGCGGCTGGAA
25 GCTCGCGAGTCAAACATCAGTGCCATCAGTGTTTCACTCACCAACCCCTGACGTAGATGTACTCCTCTTTCACTATGAAAGTGTGCATG
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CATGTACCAAATGTGATTTTATTACCCAAGTGAAGAAGAGATTTCCCGACACTACAGGAGAGCACACAGCTGCTACAAATGCCGTC
AGTGCACTTTTACAGCTGCCGATACTCAGTCACTACTGGAGCACTTCAACACTGTTCACTGCCAGGAACAGGACATCACTACAGCCA
ACGGCGAAGAGGACGGTCATGCCATATCCACCATCAAAGAGGAGCCCAAAATTGACTTCAGGGTCTACAATCTGCTAACTCCAGACT
30 CTAAAATGGGAGAGCCAGTTTCTGAGAGTGTGGTGAAGAGAGAGAAGCTGGAAGAGAAGGACGGGGCTCAAAGAGAAAGTTTGGACCG
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ATCCTGCATCGGGAGAAAACAAGTCCAAGGATGAATCCAGTCCCTGTTACGGAGGCGTAGAGGCTCCGGTGTTTTTTGTGCCAATT
35 GCCTGACCACAAAGACCTCTCTCTGGCGAAAGAATGCAAATGGCGGATATGTATGCAACGCGTGTGGCCTCTACCAGAAGCTTCACT
CGACTCCCAGGCCTTTAAACATCATTAACAAAAACAACGGTGAGCAGATTATTAGGAGGAGAACAAGAAAGCGCCTTAACCCAGAGG
CACTTCAGGCTGAGCAGCTCAACAAACAGCAGAGGGGCAGCAATGAGGAGCAAGTCAATGGAAGCCCGTTAGAGAGGAGGTGAGAAG
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CTGCTCAGCAGCCAGTCCCTGGTCAGCCAAACTCTGGATATTCACAAAAGGATGCAACCTTTGCACATTCAGATAAAAAGTCTCAGG
40 AAAGTACTGGAGATCCAGGAAATAGTTTATCCGTATCTGAAGGGAAAGGAAGTTCTGAGAGAGGCAGTCTATAGAAAAGTACATGA
GACCTGCGAAACACCCAAATTATTCACCACCAGGCAGCCCTATTGAAAAGTACCAGTACCCACTTTTTTGGACTTCCCTTTGTACATA
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45 CAAATGTAAAAATGAAGGTCCCTTGAATGTAGTAAAAACAGAGAAAGTTGATAGAAGTACTCAAGATGAACTTTCAACAAAATGTG
TGCACTGTGGCATTGTCTTTCTGGATGAAGTGATGTATGCTTTGCATATGAGTTGCCATGGTGACAGTGGACCTTTCCAGTGCAGCA
TATGCCAGCATCTTTGCACGGACAAATATGACTTCACAACACATATCCAGAGGGGCCTGCATAGGAACAATGCACAAGTGGAAGAAA
ATGGAAAACCTAAAGAGTAA

SEQ ID NO.: 2: BFA4 Amino Acid Sequence

MVRKKNPPLRNVASEGEGQILEPIGTESKVSQKNKEFSADQMSENTDQSDAAELNHKEEHSLSHVQDPSSS
 SKKDLKSAVLSEKAGFNYESPSKGGNFPSFPHDEVTDNRMLAFSFPAAAGGVCEPLKSPQRAEADDPQDMA
 5 CTPSGDSLETKEDQKMSPKATEETGQAQSGQANCQGLSPVSVASKNPQVPSDGGVRLNKSCTDLLVNDNP
 DPAPLSPELQDFKCNICGYGYGNDPTDLIKHFRKYHLGLHNRTRQDAELDSKILALHNMVQFSHSKDFQ
 KVNRSVFSGLQDINSSRPVLLNGTYDVQVTSGGTFIGIGRKTDCQGNTRYFRCKFCNFTYMGNSSTEL
 EQHFLQTHPNKIKASLPSSEVAKPSEKNSNKSIPALQSSDSGLGKWQDKITVKAGDDTPVGYSVPIKPL
 DSSRQNGTEATSYWCKFCFSCESSSSSLKLEHYGKQHGAVQSGGLNPELNDKLSRGSVINQNDLAKSS
 10 EGETMTKTDKSSSGAKKKDFSSKGAEDNMVTSYNCQFCDFRYSKSHGPDVIVVGPLLRRHYQQLHNIHKCT
 IKHCFPCPRGLCSPEKHLGEITYPFACRKSNCSHCALLLHLSPGAAGSSRVKHQCHQCSFTTPDQVLL
 FHYESVHESQASDVKEANHLQSGDQGSVKESKEHSCTKCDFITQVEEEISRHYRAHSCYKCRQCSFT
 AADTQSLLEHFNTVHCQEQDITANGEEDGHAISTIKEPKIDFRVYNLLTPDSKMGEVPVSESVVKREKL
 EEKDLKEKVTWTESSDDLNRNVTWRGADILRGSPSYTQASLGLLTPVSGTQEQTKTLRDSNPVEAAHLAR
 15 PIYGLAVETKGFQAPAGGEKSGALPQQYPASGENKSKDESQSLRRRRRGSGVFCANCLTTKTSLWRKN
 ANGGYVCNACGLYQKLHSTPRPLNIIKQNNGEQIIRRRTRKRLNPEALQAEQLNKQQRGSNEEQVNGSPL
 ERRSEDHLTESHQREIPLPSLSKYEAQGSLSKSHSAQQPVLVSQTLDIHKRMQPLHIQIKSPQESTGDPG
 NSSSVSEGKSSSERGSPIEKYMRPAKHPNYSPPGSPIEKYQYPLFGLPFVHNDQFQSEADWLRFWISKYKLS
 VPGNPHYLSHVPGLPNPCQNYVPYPTFNLPPHFSAVGSDNDIPLDLAIKHSRPGPTANGASKEKTKAPPN
 20 VKNEGPLNVVKTEKVDRSTQDELSTKCVHCGIVFLDEVMYALHMSCHGDSGPFQCSICQHLCTDKYDFTT
 HIQRLHRNNAQVEKNGKPKE

SEQ ID NO.: 3: BCY1 cDNA Sequence

ATGGCCGAGCTGCGCCTGAAGGGCAGCAGCAACACCACGGAGTGTGTTCCCGTGCCACCTCCGAGCACGTGGCCGAG
 25 ATCGTGGGCAGGCAAGGCTGCAAGATTAAGGCCTTGAGGGCCAAGACCAACACCTACATCAAGACACCGGTGAGGGGC
 GAGGAACCAGTGTTTCATGGTGACAGGGCGACGGGAGGACGTGGCCACAGCCCGGCGGAAATCATCTCAGCAGCGGAG
 CACTTCTCCATGATCCGTGCTCCCGCAACAAGTCAGGCGCCGCTTTGGTGTGGCTCCTGCTCTGCCCCGCCAGGTG
 ACCATCCGTGTGCGGGTGCCCTACCGCGTGGTGGGGCTGGTGGTGGGCCCCAAGGGGCAACCATCAAGCGCATCCAG
 CAGCAAACCAACACATACATTATCACACCAAGCCGTGACCGCGACCCCGTGTTTCGAGATCACGGGTGCCCCAGGCAAC
 30 GTGGAGCGTGCGCGGAGGAGATCGAGACGCACATCGCGGTGCGCACTGGCAAGATCCTCGAGTACAACAATGAAAC
 GACTTCCTGGCGGGGAGCCCCGACGCAGCAATCGATAGCCGCTACTCCGACGCTGGCGGGTGACCCAGCCCCGCTGC
 AAGCCCCCTCTCCACCTTCCGGCAGAACAGCCTGGGCTGCATCGGCGAGTGCGGAGTGGACTCTGGCTTTGAGGCCCCA
 CGCCTGGGTGAGCAGGGCGGGGACTTTGGCTACGGCGGGTACCTCTTTCCGGGCTATGGCGTGGGCAAGCAGGATGTG
 TACTACGGCGTGGCCGAGACTAGCCCCCGCTGTGGGCGGGCCAGGAGAACGCCACGCCACCTCCGTGCTCTTCTCC
 35 TCTGCCTCCTCCTCCTCCTCCTCTTCCGCCAAGGCCCGCGCTGGGCCCCCGGGCGCACACCGCTCCCCTGCCACTTCC
 GCGGGACCCGAGCTGGCCGACTCCCGAGGCGCCCCCGGGAGAGCCGCTCCAGGGCTTCTCTAAACTTGGTGGGGGC
 GGCTGCGGAGCCCCGGCGGGCGGGGATTGCATGGTCTGCTTTGAGAGCGAAGTGAAGTGGCGCCCTTGTGCCCTGC
 GGACACAACCTGTTCTGCATGGAGTGTGCAGTACGCATCTGCGAGAGGACGGACCCAGAGTGTCCCGTCTGCCACATC
 40 ACAGCCGCGCAAGCCATCCGAATATTCTCCTAA

SEQ ID NO.: 4: BCY1 Amino Acid Sequence

MAELRLKGSS NTTECVPVPT SEHVAEIVGR QGCKIKALRA KTNTYIKTPV RGEFPVFMVT GRREDVATAR
 REIISAAEHF SMIRASRNKS GAAGFVAPAL PGQVTIRVRV PYRVVGLVVG PKGATIKRIQ QQTNTYIITP
 45 SRDRDPVFEI TGAPGNVERA REEIEITHIAV RTGKILEYNN ENDFLAGSPD AAIDSRYSDA WRVHQPGCKP
 LSTFRQNSLG CIGECGVDSG FEAPRLGEQG GDFGYGGYLF PGYGVGKQDV YYGVAETSPP LWAGQENATP
 TSVLFSSASS SSSSSAKARA GPPGAHRSPA TSAGPELAGL PRRPPGEPLQ GFSKLGGGGL RSPGGGRDCM
 VCFESEVTAA LVPCGHNLF MECAVRICER TDPECPVCHI TAAQAIRIFS

SEQ ID NO.: 5: BFA5 Nucleotide Sequence

ATGACAAAGAGGAAGAAGACCATCAACCTTAATATACAAGACGCCCAGAAGAGGACTGCTCTACACTGGGC
 CTGTGTCAATGGCCATGAGGAAGTAGTAACATTTCTGGTAGACAGAAAGTGCCAGCTTGACGTCCTTGATG
 GCGAACACAGGACACCTCTGATGAAGGCTCTACAATGCCATCAGGAGGCTTGTGCAAATATTCTGATAGAT
 55 TCTGGTGCCGATATAAATCTCGTAGATGTGTATGGCAACATGGCTCTCATTATGCTGTTTATAGTGAGAT
 TTTGTCAAGTGGTGGCAAACTGCTGTCCCATGGTGCAGTCATCGAAGTGCACAACAAGGCTAGCCTCACAC
 CACTTTTACTATCCATAACGAAAAGAAGTGAGCAAATTGTGGAATTTTGTGCTGATAAAAAATGCAAATGCG

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TTACTTGTGGATTTTCATCACATTCATGAACAAATTAATGGAATATATACGAAAATTATCTAAAAATCATCAA
AATACCAATCCAGAAGGAACATCTGCAGGAACACCTGATGAGGCTGCACCCTTGGCGGAAAGAACACCTGA
5 CACAGCTGAAAGCTTGGTGGAAAAAACACCTGATGAGGCTGCACCCTTGGTGGAAAGAACACCTGACACGG
CTGAAAGCTTGGTGGAAAAAACACCTGATGAGGCTGCATCCTTGGTGGAGGGAACATCTGACAAAATTCAA
TGTTTGGAGAAAGCGACATCTGGAAAGTTCTGAACAGTCAGCAGAAGAAACACCTAGGGAAATTACGAGTCC
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AAGAAGACACACCTAGGGAAATTATGAGTCCCGCAAAAGAAACATCTGAGAAATTTACGTGGGCAGCAAAA
10 GGAAGACCTAGGAAGATCGCATGGGAGAAAAAGAAACACCTGTAAAGACTGGATGCGTGGCAAGAGTAAC
ATCTAATAAACTAAAGTTTTGGAAAAAGGAAGATCTAAGATGATTGCATGTCCTACAAAAGAATCATCTA
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GATTCTCGGAGTCTCTTTGAGAGTTCTGCAAAGATTCAAGTGTGTATACCTGAGTCTATATATCAAAAAGT
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15 AAAACTCTGTTCCAAATAAAGCCTTTGAATTGAAGAATGAACAAACATTGAGAGCAGATCCGATGTTCCCA
CCAGAATCCAAACAAAAGGACTATGAAGAAAATTCTTGGGATTCTGAGAGTCTCTGTGAGACTGTTTCACA
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20 GCAAAAGTCTGTCCCAATAAAGCCTTGAATTGAAAAATGAACAAACATGGAGAGCAGATGAGATACTCC
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GTCTCCTGTAAAGATGGTCTTCTGAAGGCTAACTGCGGAATGAAAGTTTCTATTCCAACCTAAAGCCTTAG
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25 ATGCAAAAGTCTGTTCCAAATAAAGCCTTGAATTGAAGAATGAACAAACATTGAGAGCAGATGAGATACT
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GAGTCTCCTGATAATGATGGTTTTCTGAAGGCTCCCTGCAGAATGAAAGTTTCTATTCCAACCTAAAGCCTT
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30 AAATGCAAAAGTCTGTTCCAAATAAAGCCTTGAATTGAAGAATGAACAAACATTGAGAGCAGATCAGATG
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35 GTCAGAAGCAAAAGAAATAAAATCACAGTTAGAGAACC AAAAGTTAAATGGGAACAAGAGCTCTGCAGTG
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GAATTAGGAAGAATCGAAGAGCAGCATAGGAAAGAGTTAGAAGTGAACAACAACCTTGAACAGGCTCTCAG
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40 AAACACCAATACCAGGAAAAGGAAAATAAATACTTTGAGGACATTAAGATTTTAAAAGAAAAGAAATGCTGA
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45 GTAGTACGATATATAACAATGAGGTGCTCCATCAACCACTTTCTGAAGCTCAAAGGAAATCCAAAAGCCTA
AAAATTAATCTCAATTATGCAGGAGATGCTCTAAGAGAAAATACATTGGTTTCAGAACATGCACAAAGAGA
CCAACGTGAAACACAGTGTCAAATGAAGGAAGCTGAACACATGTATCAAAACGAACAAGATAATGTGAACA
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CAGCAATTAGTTTCATGCACATAAGAAAGCTGACAACAAAAGCAAGATAACAATTGATATTCATTTTCTTGA
50 GAGGAAAATGCAACATCATCTCCTAAAAGAGAAAAATGAGGAGATATTTAATTACAATAACCATTTAAAA
ACCGTATATATCAATATGAAAAAGAGAAAGCAGAAACAGAAAACCTCATGA

SEQ ID NO.: 6: BFA5 Amino Acid Sequence

MTKRKKTINLNIQDAQKRTALHWACVNGHEEVVTFVLVDRKCQLDVLDGEHRTPLMKALQCHQEACANILIDSGADINL
VDVYGNMALHYAVYSEILSVVAKLLSHGAVIEVHNKASLTPLLLSITKRSEQIVEFLLIKNNANANAVNKYKCTALMLA
VCHGSSEIVGMLLQQNVDFVFAADICGVTAEHYAUTCGFHHIHEQIMEYIRKLSKNHQNTNPEGTSAGTPDEAAPLAER
TPDTAESLVEKTPDEAAPLVERTPDTAESLVEKTPDEAASLVEGTSDKIQCLEKATSGKFEQSAEETPREITSPAKET
5 SEKFTWPAKGRPRKIAWEKKEDTPREIMSPAKETSEKFTWAAKGRPRKIAWEKKETPVKTGCVARVTSNKT KVLEKGR
SKMIACPTKESSTKASANDQRFPSSESKQEEDDEEYSCDSRSLFESSAKIQVCIPESIQKVMEINREVEEPPKKPSAFK
PAIEMQNSVPNKAFELKNEQTLRADPMFPPESKQKDYEENSWDSESLCETVSQKDVCLPKATHQKEIDKINGKLEESP
NKDGLLKATCGMKVSIPTKALELKDMQTFKAEP PGKPSAFEPATEMOKSVPNKALELKNEQTWRADEILPSESKQKDY
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10 SAFEPAIEMOKSVPNKALELKNEQTLRADEILPSESKQKDYEESSWDSESLCETVSQKDVCLPKATHQKEIDKINGKL
EESPDNDGFLKAPCRMVSIPTKALELMDMQTFKAEPPEKPSAFEPAIEMOKSVPNKALELKNEQTLRADQMFPSESK
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KKKFCVLKKKLSEAKEIKSQLENQKVKEQELCSVRLTLNQEEKRRNADILNEKIREELGRIEEQHRKELEVKKQLE
QALRIQDIELKSVESNLNQVSH THENENYLLHENCMLKKEIAMLKLEIATLKHQYQEKENKYFEDIKILKEKNAELQM
15 TLKLKEESLTKRASQYSGQLKVLIAENTMLTSKLKEKQDKEILEAEIESHHPRLASAVQDHDQIVTSRKSQEPAFHIA
GDACLQRKMNVDSSTIYNNEVLHQPLSEAQRKSKSLKINLNYAGDALRENTLVSEHAQRDQRETQCOMKEAEHMYQN
EQDNVKNHTEQQESLDQKLFQLQSKNMWLQQQLVHAHKKADNKSKITIDIHFLEKRMQHLLKEKNEEIFNYNNHLKN
RIYQYEKEKAETENS